

# Exploring the Imageability of Walled City Jaipur

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**Abstract**— The city is an amalgamation of the utmost interactions of the built mass (form), open spaces and their spatial organization (layout) in a geographical area to obtain a holistic pattern and environment, generally based on socioeconomic conditions and lifestyle of the inhabitants, nature and character of activities and the available materials and technologies, which consequently shapes the overall form and thus image and identity of the place. The cities commonly have a large number of images based on the selective impressions of related realms of the surrounding forms assimilated by people through exaggeration of certain features and exclusion of the other based on the planning and layout of the various elements of the built forms. This paper attempts to analyze various elements of urban form (i.e. built form and unbuilt spaces) of the walled city of Jaipur which results in the formation image and identity of the city. Jaipur is a medieval city founded in 1727 to accommodate exploding population of Amber city, the capital of erstwhile Dhoondhar kingdom. It is known as Pink City for its predominantly pink/rose and complimentary colour schemes. The city has seen a huge transformation in the culture, life style, socioeconomic condition and technology over the ages, yet it is one of most accessible and functional medieval city in India. The study is based on field surveys and analysis of various literatures to ascertain the elements of urban form and overall planning of the forms, pattern and structure resulting into perception and formation of the image and identity of the walled city. The paper concludes with recommendation for the highlighted problems and discrepancies in perception of the overall image and form of the city due to the urban growth and development in the present context.

**Keywords**- City Identity, City Image, Imageability, Medieval City, Urban Form

## I. INTRODUCTION

The image of a city or its environment is an outcome of two way interactive processes between an observer and the environment. It is an assimilation of observer's filtered perceptual input of related meaning and purpose of constant interacting process based on selection, organization and endorsement, and the distinctions and relations suggested by the environment [1], [2]. Image and Form of the city is being shaped since the beginning of human settlements, and evolving continually over time as an outcome of the perception and reaction of the inhabitants and users in response to social, environmental, economic and technological developments reflecting local climate, character and identity. These also form set of important factors which support compact, accessible, active and healthy communities. The change and

transformation in these factor bringing about changes in life style and activities of the inhabitants and end-users. The growth and development of a city is continuous process hence its form, character and image evolve with time, as a result of augmentation in urbanization and resultant urban form with the shift in paradigm.

The image of a place is more than the reality and may be increasingly misleading at a time in negative or positive ways despite the considerable changes, manipulations and transformations in overall form or culture over a span of time [3]. The planners as a manipulator and transformer of physical environment are primarily concerned with the extended agents of interaction, and hence try to capture and influence of attention of the observers and their perceptions and imageability by creating a common mental picture carried by large number of inhabitants, ignoring the individual differences [1], [3]. The image of the city in broader term is people's comprehension based on selective impression to simplify and generalize the pattern and system of orientation which may be organized around a set of focal points, or broken into named region, or linked by remembered routes, and seems to echo the formal types of image elements of the city categorized and classified by Lynch as physical elements and perceptible objects of urban environment into five broad categorized: Paths, Edges, Districts, Nodes and Landmarks [1]. These elements have been continuously studied and cited by many researchers.

Urban form in general is the physical shape and structure of the city or built environment around us. It is comprised of visual images of the cities, experiences, feelings, memories of place, thoughts and intellectual constructs anchored in the realm of art and humanities [4]. It is combination of all urban elements which includes the built-up areas & its design including character & identity, urban (street) layout & design (streetscape & urban structure), the physical layout through subdivision pattern, including public & private space, the interrelationship of activities & functions of centres or towns or open space, recreation area & green space [5], [6], [7] & [8]. It differs from place to place, and is relative to its location and function. The evolution of the urban form of Indian cities in general is an outcome of random growth of settlements over the large span of time, which in most of the cases are unguided and unplanned. Some planned intervention like Jaipur has also been commission at different times, but the tremendous change in the lifestyle of people and economic life of the city in the present times has led to transformation of the urban fabric and

structure. This is because of the loss of connection between building regulations and aesthetic and environmental values leading to negative spatial and social effects on cities [9] which in turn affected the urban fabric and form.

The paper discusses the visual elements of urban built form of the walled city Jaipur and their Imageability attributes in relation to other elements of the image formation as described in the pioneering works of Kevin Lynch with special reference to his book “The Image of The City”. The paper first discusses the imageability elements from the book in brief, followed by the planning of the walled City and components of its urban form with reference to the imageability elements. Then the paper concludes with summarization of the major problems and discrepancies in the urban form and aesthetics affecting the imageability in present context, and some recommendation which require urgent attentions and considerations for the restoration and conservation of the heritage as well as the image and identity of the historical walled city.

## II. PLANNING OF THE CITY

The city of Jaipur is located at 26°55' N 75°49' E coordinates at an average elevation of 432 m [10]. It was founded by Raja Swai Jai Singh II as new capital of Dhoondhar Kingdom in 1727 to cater to the needs of the exploding population and solve the problem of scarcity of water in hill city of Amber, the then capital of the kingdom. It is located in the south of Amber in valley and plains beyond the hills, and lies in eastern part of Rajasthan Province (at present). It is surrounded by hills on 3 sides, the Nahargarh Hills in the north house the fort of Jaigarh and the Amber palace. The city was planned by Architect Vidyadhar Bhattacharya for area about 481 hectares in which later grew to 670 hectares covering upto the walls of city. The city took 4 years to complete the construction of major palaces, roads and square, which were intricately designed according to

the guidelines provided. The city was initially designed to house the population of 50,000 but it currently has a density of over 58,207 persons/sq. km [11].

The planning of the Jaipur city is said to be based on the Prastara principles prescribed in the Shilpa-shastra or vastushastra (ancient Indian Art of designing Houses based on cosmology), in which the emphasis is given to the cardinal directions with modified gridded layout 3x3 with main streets or paths being the grid lines. Though some scholars are against the view that planning is based on the parastara principles as the overall plan of Jaipur does not corresponds to regular shaped Parastara plan with northern and north-western boundaries being irregular in shape, and the layout is basically divided into 8 divisions called Chowkri not into 4 as originally conceived. Dr. Jain also highlights that direct application of the mandala in the plan of Jaipur seems improbable as the major objective of the origin of the city planning and layout was the pragmatic response to the need of a new capital for Dhoondhar Kingdom with a strong political statement and a thriving trade and commerce hub for the region at par with Mughal cities, rather than adherence to the traditional treatise of the Vastushastra [12].

The prime vision and objective was to develop a city plan integrating the innovative concepts of traditional planning guidelines in line with traditional texts on spatial organization along with an appropriate adaptation of the terrain with contemporary Mughal architectural vocabulary, showcasing a political will to define new concepts for a trade city with clear grid iron planning with commercial streets of monumental scale built with extraordinary foresight and futuristic planning [13] thereby making it only 18th century walled city in India still catering to the present day pressures of vehicular traffic on roads. The key plan of the walled city has been shown in “Fig. 1”.

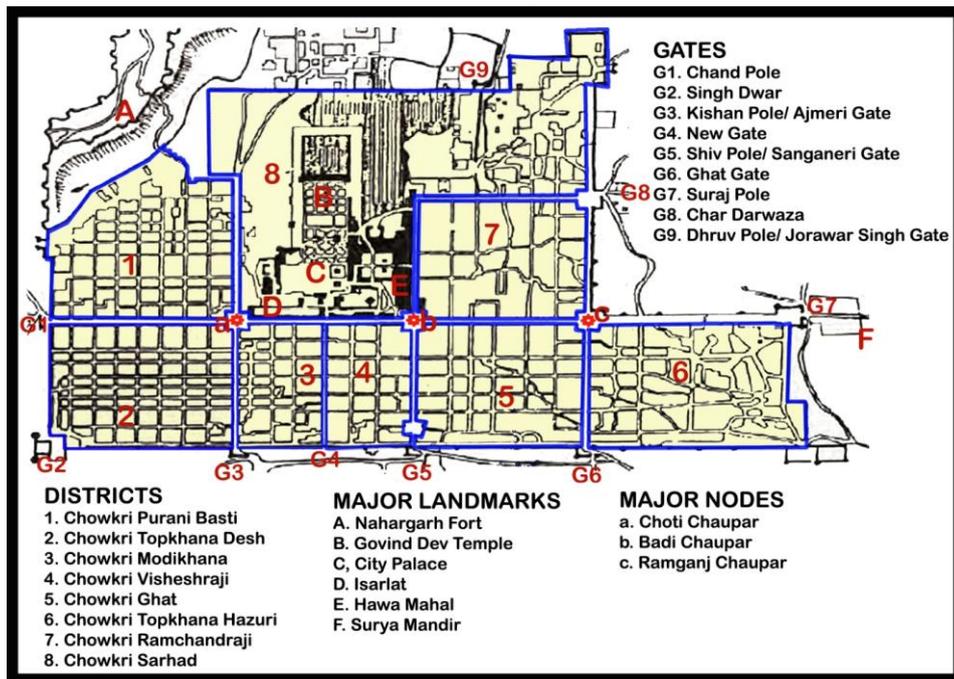


Figure 1: Key Plan of Walled City Jaipur

### III. IMAGEABILITY OF URBAN FORM ELEMENTS

#### A. Paths (Street System)

Paths or street system (also 'Rasta' in local terminology) are predominant element of imageability for most of the people. They form the basic path system and division system of area in layout of the city. They include the roads, streets system, pedestrian walkways, transit lines, etc. the routes or channels along which the people or observer potentially, occasionally, or customarily moves [1]. The plan of the walled city is laid by major road along natural ridge running west to east from foothills of Nahargadh Fort till Sand dunes of Galtaji at slight angle of 15° which is divided by three perpendicular roads equidistant to each other forming nodes or town squares called Chaupars [14]. There is a hierarchy of street system followed in the layout which are interconnected and cut each other at right angle throughout the city "Fig. 1".

The designed width of main roads "Fig. 2" are 108 feet wide followed by the secondary streets Fig. 3" of width 54 feet which are then intersected by the internal streets "Fig. 4" of width 27 feet which end up in the local streets "Fig. 4" of width 13 feet. The street system forms an important element of the public image in the walled city as most of the streets are designated by names of the type of occupation adopted by the people living in that cluster or in the name of caste or some famous personality (like Gopal ji ka rasta) of who were allocated space there. Almost all the streets are interconnected which also has some relative directional attributes associated with them "Fig. 5".



Figure 3: Secondary Streets



Figure 4: Curvilinear Internal Street & Local Street



Figure 2: Main Roads



Figure 5: Major Paths & Edges

*B. Edges (Walls and Facades)*

Edges are the linear elements not used or considered as paths by the observer. These are the boundaries between the two phases, adjoining the paths or between two paths, linear break in the continuity such as cuts, edges of development, walls, physical barrier such as mountain or shores, etc. they may be permeable through perforations, breaks, etc. [1]. They predominantly comprise of walls and facades (generally with bazaars or shopping arcade/market street) in case of walled city. The city is further surrounded by the hills beyond the walls on three sides which act as the natural edge.

**Walls** – The city is bounded by the 6 meter high and 3 meter thick crenellated masonry wall surrounding the city that is punctured by nine gates at the points where the major roads meet the walls. Though the significance of walls has almost reduced to null in most parts of the city as on day today, as the wall is broken at many places on the northern end along the MI road, buildings have been constructed along the walls “Fig. 6”. Major section of the walls have been raised to the ground in the west and north side adjoining chowkri Purani basti and Topkhana desh and only 25% of the wall is remain today, that too with large numbers (2800) of encroachments along it [11].



Figure 6: Construction along the Walls

**Facade** – The facade characteristics along major roads generally comprises Havelis or residences and places of religious importance on upper floor and ‘Bazaars’ or shopping arcade forming main markets on both sides of street on the ground floor all through the city “Fig. 7”and “Fig. 8”. The bazaars generally have covered pathways by use of chhajjas (sunshades) in front of it “Fig. 8”, resulting in strong horizontal lines, by projected vertical blocks on brackets [13]. It is more or less uniform and monotonous in terms of colour and architectural character and forms as they were constructed by the state in the 18th century to maintain a uniform street facade, though some alterations in terms of latter additions or extensions or new constructions has bring about some changes, but still it forms a strong visual line when seen at a glance. The religious and social buildings/structures above shops in Bazaar

streets are accessed by wide staircase starting from pavement to the first floor level “Fig 10”.



Figure 7: Façade designed without Bazaars



Figure 8: Facades with Bazaars on the ground floor

*C. District (Chowkris)*

Districts or Chowkris (in local terminology) are the medium to large division of the city having two dimensional extent generally bounded by permeable and non permeable edges and paths in which observer mentally enters ‘inside of’ [1]. It has some recognizable and common identifying characters [1]. The city was divided into 8 Chowkris with normal grid of 800m x 800m. The chowkri housing the palace and main temple is larger and 2 chowkris on its south are half the size of 400m x 800m [12]. Each Chowkri generally

comprise of up to 400 mohallas or neighbourhood in a chessboard pattern as shown in “Fig. 1”. The central square (Chowkri Sarhad) housing the Palace and main temple of Govind Dev is surrounded by high walls, and has several courtyards sequentially laid out with a system of gateways [13]. This division of the walled city into wards and their subdivision into sub-wards, by different scales of grid, is more than a matter of mobility and geometry [15].

**Subdivisions**

- **Mohalla** – Mohalla is constituted by group or cluster of 40 to 50 havelis (residential units) in general, forming a community or wider social group bond in general by caste (jatti), professional and social attributes rather than by blood and marriage. It spatially functions as a cell within the city separated from each other by the smaller roads, but aggregate to form a chowkri [13], [15].
- **Havelis** – The havelis (medieval north Indian mansions belonging to nobles) is architecturally the smallest social unit forming the basic urban fabric of the city, which accommodated all the members of an extended family, and certain of their servants, and ranging from a single courtyard house form to an assemblage of multiple courts, depending on the status of the owner and number of family members [13], [15]. Havelis generally have rectangular or square shape, sometimes with offsets and have one or two courtyards in most of the cases. These are generally clustered around large or small pockets of open spaces generally having Temples with deity whose attributes are most appropriate for the protection of the community. Natani Haveli is the largest with 9 courtyards for Prime minister of the King located at Choti Chaupar.

*D. Nodes (Major – Chaupars & Minor – Chowks)*

Nodes are the points of the intensive foci along the paths in the city through which the observer is travelling. They are the strategic spots in the city into which he can enter, and are primarily the junctions, crossing or convergence of the paths, places of break in the transportation, moments of shift from one structure to another, etc [1]. Besides chaupar, gateways marking the entry to the walled city also act as nodes as well as a point of reference or landmark for the people.

**Major Nodes – Chaupars or Town Squares**

Chaupars are the major cross junctions on the main axial roads which were earlier site of public squares and stepped wells and water structures for the supply of fresh water at street levels throughout the city by underground aqueducts running along the roads. They were later turned into small landscaped enclosures with ornamental fountain or water body. There are the three important junction formed at intersection main axial road from Chandpole to Surajpole by three perpendicular roads named as Chhoti Chaupar, Badi Chaupar and Ramjang Chaupar respectively. The width of the square chaupars was three times that of the main street i.e 324 feet. The ongoing construction of the underground metro from Chandpole to Badi Chaupar has led to the demolition water body and structure at the Choti and Badi Chaupar.

**Minor Nodes – Chowks or Cross junctions**

Chowks are other important cross junctions generally formed by the intersection of the lateral roads and the sector streets or the sector roads within the chowkries, etc. Some of the important chows in the city are Subhash Chowk, Jaleb Chowk, Chandini Chowk, etc. The streets and chowks of the internal chowkries with numerous clusters or mohallas were not predetermined; hence show a mix of grid iron and organic pattern, with the basic unit of built form [13].

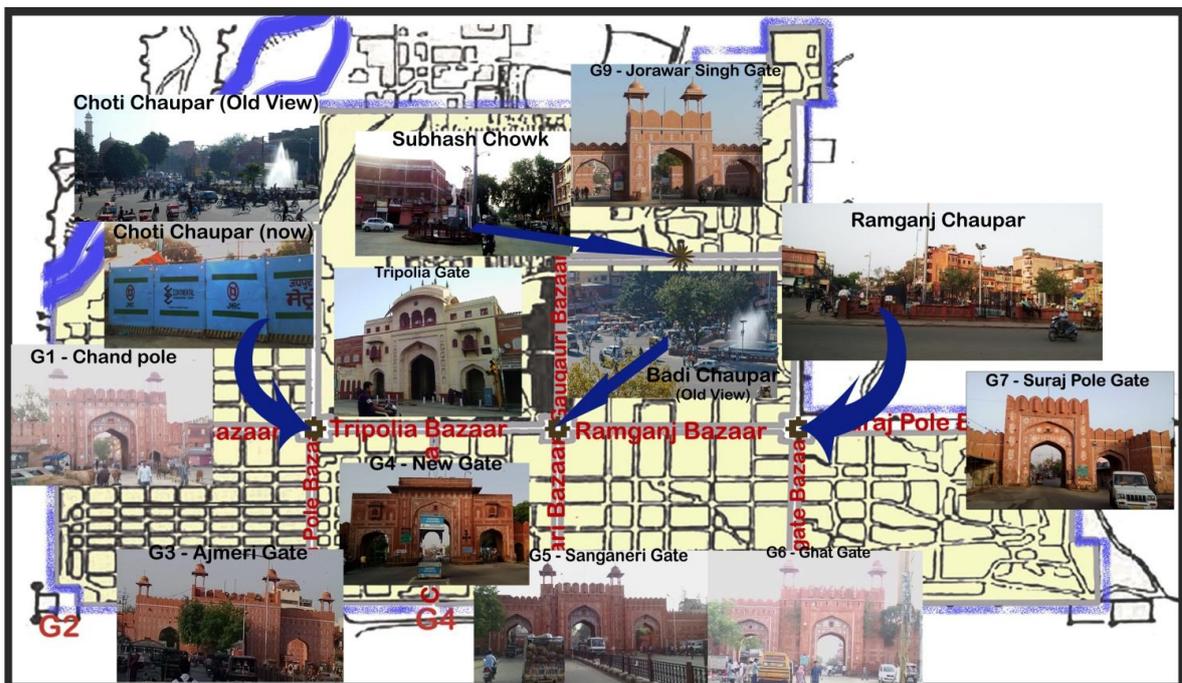


Figure 9: Important Nodes in the Walled City

*E. Landmarks*

These are the point of references generally not entered by the observer and are usually externally defined features or physical objects such as buildings, signs, mountains, activity centres, some unusually monumental objects, etc., some landmarks may also have directional attributes or some are the distant ones i.e. seen from many angles and distances [1]. The major landmarks of the city comprises of the Nahargarh Fort and Surya Temple on the hills in the backdrop of the city,

Hawa mahal (which has also become an icon of the city), Jantar Mantar, Isar lat, the City Palace itself, various temples and mosques, some public buildings like Town hall, Rajasthan School of arts (earlier Maharaja College), some havelis lying within the city mostly along the major roads. Besides these the gateways and chaupars have also become the landmarks for the people.

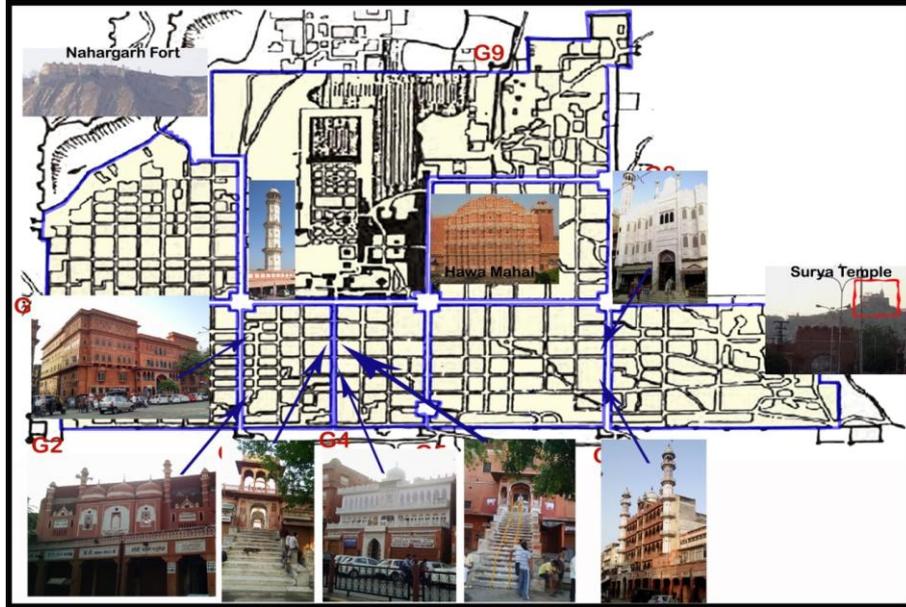


Figure 10: Important Landmarks in the Walled City

IV. PROBLEMS IN IMAGEABILITY

The complete walled city in the beginning had been designed with such a careful planning with intricate detailing and clarity of thought with respect to form and character of the different elements and components of individual buildings at micro level to components and constituents of city at macro level. Each and every element of the city form has been assembled into one complete whole with a futuristic vision by retaining its own significance, character and role to play in the identity of the city, thereby creating an iconic city having its own identity and earning a distinction of being most successful and functional city of medieval India in the present times. The city has most of the architectural character, identity and culture preserved to an extent still today. Besides all the physical elements of the built form and fabric of the city, the ingrained culture and traditions has a very important role to play in the imageability of Jaipur. Some of the festivals and socio-cultural events like Gangaur festival and processions, etc. are very much the part of the image and identity of the city.

The advent of rapid urbanization especially post independence has aim of accommodating the ever increasing population in the urban centres of India including Jaipur. The developments and extensions of the city both spatial and volumetric with has not given much considerations and weightage to the conservation of ingrained character and architectural identity of the walled city, thus affecting the overall built form and urban fabric in a period of over half a

century. The major problems in imageability of the city and curative measures have been summarized as follows:

- **Lack of appropriate Development Regulations:**

Due to lack of proper prescribed and proscribed guidelines for the walled city area even after independence the construction activities both vertical and horizontal, to accommodate the residential and other demands of the growing population has negligibly considered nature and character of the existing urban form thus resulting into an architectural chaos and mismatch. The constructions such as development of commercial complex like Riser Plaza or residential extensions and development within the Chowkris are some of the predominant examples. Furthermore some of the guidelines and regulations that have been prescribed latter also lack effective implementations.

- **Lack of heritage Conservation & Preservation:**

The conservation and preservation of the heritage has not been given a due importance resulting in the loss of the aesthetic and architectural beauty thereby affecting the culture, character and sense of a place of the city which in turn affect the visual experience, image and identity. The lack of knowledge and awareness about conservation and preservation of heritage by the individuals at large and government agencies has resulted into mutation or destruction of the architectural character. The extension of buildings, renovation and restoration works or

reconstruction of the dilapidated structures has been some of the major impediment in the conservation of the architectural character of built form of the city which needs urgent considerations.

- **Shift urban development paradigm:**

The development pattern has undergone a shift in paradigm due to change in socio-economic culture, character and lifestyle of people and also with the technological development and advancement. The condition is further aggravated in the absence of the appropriate development guidelines which remained largely static with some minute changes over the years.

- **Unplanned and unregulated urban extensions:**

The later construction and developments works throughout the city has been largely unplanned and unregulated. The major affect can be seen in the extension of the city in the western and north western part where the wall has been raised to the ground and contrasting abrupt continuous development without any holistic character and identity has taken place, similarly in the north eastern part beyond the char darwaza and Surajpole bazaar haphazard development has taken place extending beyond the Delhi Highway from Ghat ki guni to Jal mahal.

- **Service provisions and urban development work:**

The service provision such as electricity, water supply, etc. has been put in as an appendage without any consideration for the heritage character and aesthetics of the place. The electric transformers and supply lines and poles, solid waste collection points, etc. have not been designed and placed well thus give an unsightly appearance. Further the construction activities and ongoing work of metro rail are some major visual and aesthetic problems.

- **Encroachments:**

The encroachments on the streets by extension of the houses and shops in most of secondary and tertiary streets especially within the chowkris, and the intrusion and encroachment by the shops into the walkways and pathways along the main roads and also by the vehicles parked on the roads are another major problem which has destroyed the character and hierarchy of streets also affecting the sense of location and directional navigation.

- **Lack of Maintenance and cleanliness:**

The city in general lack a proper maintenance of the built form and infrastructure thus very much affection the pink city and planned city notion and character. Furthermore the lack of cleanliness has affected the overall visual experience and image.

## V. RECOMENDATIONS

- The development regulations shall be made more case specific with a focus on the development of the overall form with specified guidelines for the conservation of the heritage character.
- There shall be proper audit and implementation mechanism and strict action against violators.

- The conservation of the heritage character shall also be promoted through some incentives and performance bonus, etc.
- The education and awareness programs highlighting the need and importance of the heritage conservation of the masses shall be started.
- There shall be a compulsory notification and registration of any construction, restoration and renovation work which shall be checked for compliance with heritage conservation plan and guidelines.
- The heritage conservation guidelines and development regulation shall be made to performance based and need to be revised to accommodate the recent advancement and development in terms of materials and construction technology, etc.
- The encroachments and intrusion into public realm and spaces need to be checked and dealt with strong monetary fines and punishments. The multilevel; car parking shall also be developed for the visitors and some streets shall be made vehicle free.
- The infrastructure services and installations shall be designed as to be in harmony with the heritage character. The regular maintenance of the buildings, roads and infrastructure shall also be ensured.

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